

A Study to Evaluate Effectiveness of Structure Teaching Programme on Knowledge Regarding Urinary Tract Infection and its Prevention among Adolescent Girls between Age Group of 14-17 Years in Selected Higher Secondary School of Bhopal (M.P.)

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ABSTRACT

Background: The infection is not limited to bladder alone it also involves the kidneys it occurs more in older children and adolescent an increased risk of recurrent urinary tract infection symptoms included burning during micturition increased frequency of micturition and lower abdominal pain. **Objectives:** The aim of this study was to assess the knowledge of adolescent girls regarding prevention of urinary tract infection as well as to provide information to them about regarding prevention of urinary tract infection. **Methods:** The research approach adopted for this study is a Quantitative research approach. The research design was pre-test and post-test design. The pilot study was conducted at Higher Secondary School at Bhopal. A Convenient sampling technique was used. Structured knowledge questionnaire was used to assessing the prevention of urinary tract infection among adolescent girls. The final study was conducted with 30 sample in schools was given followed by posttest after 7 days using the same pretest tools. The data collected was analyzed using inferential statistics. **Results:** The computed 't' value ($t=9.3235$) was higher than the table value ($t=2.04$) at 0.05 level of significance. Hence, the research hypothesis (H_1) was accepted. This indicates that the planned teaching program was effective in increasing the knowledge score of Community people regarding environmental health. **Conclusion:** The study concluded that the information was given with the aid of structure teaching programme which included various aspects such as introduction, causes, types, complication and management, which will help the adolescent girls to improve their knowledge and to adopt the safe practice.

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KEYWORDS: Effectiveness, Urinary tract, Adolescent girl

INTRODUCTION

Urinary system is also known as excretory system of human body. it's the system of production storage, elimination of urine formation. The elimination of urine is important for human body because urine contains nitrogenous waste of the body that must be eliminated to maintain homeostasis. Nitrogenous waste is formed by metabolic activities in the cells this nitrogenous waste along with excess of salt and water are combined in the kidneys to form urine. Urinary system is important for keeping the internal

environment of the body clean and maintains proper homeostasis of water salts and nitrogenous waste.

BabakAbdinia, et., al, (2013), the study was determining the prevalence of urinary tract infection in healthy elementary school. Children in Tabriz city and analyzed their urinary profiles. This cross-sectional descriptive research was performed on 312 student who were selected from the Tabriz city schools. Using random cluster sampling. A second

morning urine sample was collected in order to analyze the urine and the random level of calcium, creatinine, uric acid, oxalate, citrate and protein and the kidneys and urinary tract ultrasonographic were performed. In this research 312 student were studied prevalence rate of urinary tract infection was 3.8%, 6.3% of girls were positive. The performed ultrasonography's indicated; 0.3% hydronephrosis, 0.3% renal calculus, 0.6% had proteinuria. There were 4 cases, 1.28% of girls who had hematuria. A total of 8.01% (n=25) hypercalciuria, 7.05% (n=22) of oxaluria, 1.28% (n=4) of hyperuricosuria and 13.46% (n=42) hypocitraturia.

Formation and secretion of urine, which regulates total body water, electrolytes and acid - base balance and enables excretion of waste products. Urine is stored in the bladder and excreted by the process of micturition, regulate the volume and composition of extracellular fluid and activate the vitamin D.

Urinary Tract Infection is an infection that affects part of urinary tract when it affects the lower urinary tract its known as a bladder infection and when it affects the upper urinary tract infection its known as kidney infection symptoms of lower urinary tract infection include pain with urination.

Urinary tract infection is a bacterial invasion of kidneys, it is designated as pyelonephritis or upper urinary tract infection when the infection involves mainly renal parenchyma, lower urinary tract infection involves infection of urinary bladder and urethra in young children, the symptom may include diarrhea, loss of appetite, nausea and vomiting, fever and excessive crying. Infection of the genitourinary is one of the most common condition of children.

Urinary tract infection is the common of in affecting humans thought their lifespan. It occurs in all populations from neonates to geriatric patients but it has a particular impact on females of all ages (especially during adolescent girls) urinary tract infection are much more common in adults than in children but about 1-2% of children to get urinary tract infection. Urinary tract infection in children is more likely to be serious than those in adults and should not ignored (specially in younger children) the reason for this is not understood but anatomic difference between the genders (a shorter urethra in women's) might be partially responsible about 40% of women and 12% of men have a urinary tract infection at some in their life.

The high incidence of lower urinary tract infection among females may result from the shortness of female urethra 3-5 cm which predisposes females to infection caused by bacteria from the vagina

perineum, rectum or a sexual partner. males are less vulnerable because their urethras are longer 8.4 cm and because prostatic fluids serve as an anti-bacterial shield in females. Infection usually ascends from the urethra to the bladder.

This is a crucial period in the adolescent life because alteration in the physical and physiological function takes place in the body in the stage of their life should take care of themselves in various aspects like personal hygiene, nutrition, exercise, and periodic healthy checkups.

Adolescence is an important segment of our society with one fifth of them constituting population as per WHO (1986) defined as the adolescent as the period of transition from childhood to adulthood in the age range of 10-20 years thus its largest aver generation in human history in India of total 21% of the population comprises of adolescents. Adolescence is a stage between man hood / women hood lack of adequate knowledge may lead to various genitourinary diseases among adolescents' girls.

Need of the study:

Incidence of urinary tract infection globally include 34% of adult below 20 years also 794 per 10,000 adults aged 20 years have at least one occurrence of urinary tract infection the prevalence of urinary tract infection in India up to 8% of girls in India are getting urinary tract infection. Adolescent period and rates vary from 3-5% and up in India the higher prevalence of urinary tract in a girl.

The adolescent girls are at high risk of developing urinary tract infection because of the anatomical proximity of urethra to the rectum and short urethral length in females as compared to the males.

Specially in adolescent girls it is estimated that 5-6% of girls will have had at least one episode of bacteria between the time they enter first grade and graduate from the high school reoccurrence rate is 50% grater in girls. Bacterial infection of the lower urinary tract infection bladder and urethra are very common.

A cross sectional study was carried out among 181 adolescent and preadolescent girls aged between 10-19 years. A pre designed instructional module questionnaire was used which contained question related to puberty, hygiene and urinary tract infection. There was significant association between prevalence of urinary tract infection improper perineal washing technique.

The contributing factors of urinary tract infection due to school toilets with poor hygiene inadequate education regarding menstrual hygiene. 80% of urinary tract infection in adults are due to *E-coli* live

on the skin near the anus or vaginal that can spread and enter the urinary tract infection when women wipe from back to front after using the toilet.

A cross sectional survey study was conducted to find out the relationship between urinary tract infection and use of sanitary pads and tampons among adolescent girl sample size was 50% female college student aged between 16-20 years. There was a significant association between 16-20 years. The result should 4% used pads 25% used both pads and tampons and 3-5% used tampons 10% of pad users and 45% among tampon users were infected with urinary tract infection. The researcher concluded that health professionals should assume more active role in explaining the appropriate use of pads and its benefits during menstrual cycles, personal hygiene and proper techniques of perineal washing.

Keeping the above information and personal experience the investigator believe that lack of adequate knowledge and hygiene practice are most common cause for urinary tract infection among adolescent girls nurses being the part of health team have responsibility to educate the adolescent girls and show correct pathway to prevent urinary tract infection. Hence the above maintained factors motivated the investigator to undertaken the study.

PROBLEM STATEMENT:

A study to evaluate effectiveness of structure teaching programme on knowledge regarding urinary tract infection and its prevention among adolescent girls between age group of 14-17 years in selected higher secondary school of Bhopal (M.P.).

OBJECTIVES:

1. To Prepare structure teaching programme on knowledge regarding prevention of urinary tract infection among adolescent girls age of 14-16 year in selected higher secondary school.
2. To assess knowledge of adolescent girls regarding prevention of urinary tract infection before and after the administration of structure teaching programme.
3. To evaluate the effectiveness of structure teaching programme on knowledge regarding prevention of urinary tract infection among the adolescent girls.

HYPOTHESIS:

H1- There will be significant difference between the pre-test and post-test level knowledge score among adolescent girls regarding prevention of urinary tract infection at 0.05 level of significance.

H2- There will be a significant association between the pre-test knowledge score of adolescent girls with selected socio demographic variables.

OPERATIONAL DEFINITIONS:

Evaluation: In this study the activity to estimate the result of booklet information on knowledge of adolescent girls regarding the urinary tract infection and its preventive measures.

Effectiveness: In this study it refers to gain in post-test level of knowledge compared to pre-test level of knowledge among adolescent girls regarding urinary tract infection and prevention.

Structure teaching programme: In this study structure teaching programme contains information regarding causes, symptoms, and prevention of urinary tract infection.

Knowledge: In this study knowledge refers to the right response given by adolescent girls to the questionnaire related to urinary tract infection.

Urinary tract infection: In this study urinary tract infection refers to the infection of urinary tract as evidenced by increased frequency of urine, fever, and burning urination.

Preventive measures: In this study it refers to the measures taken for the prevention of urinary tract infection such as menstrual hygiene, personal hygiene, cleaning defecation, adequate water intake, diet, voiding habits.

Adolescents: In this study adolescent is a period of transition between childhood and adulthood a time of rapid physical cognitive social and emotional maturing as the boy prepares for man hood and the girl prepares for women hood in the present study, adolescent girls refer to those aged 14-16 years.

MATERIAL AND METHODS:

Research approach: Quasi Experimental Method.

Research design:

Pre-experimental one group pre-test post-test design.

Variables:

Independent variables: Structure teaching programme regarding prevention of urinary tract infection among adolescent girls.

Dependent variables: Knowledge of adolescent girls regarding prevention of urinary tract infection.

Demographic variable: Such as Age, Religion, Occupation of the mother, Education of the mother, Sanitation facility, Source of information, Area of living.

Research setting:

The study was conducted in Higher Secondary School at Bhopal

Population: *In this study population consisted of Adolescent girls studying in 9th-12th selected Green Valley Higher Secondary School, JK town, Bhopal.*

Target Population- Adolescent girls from selected School at Bhopal

Accessible population - Adolescent girls studying in class 9th-12th of higher secondary School at Bhopal.

Sample:

Adolescent girls from select High School

Sample size: 30 adolescent girls from select High School

Sample techniques:

Simple Random Sampling technique

Criteria for sample selection:

Inclusion criteria:

Adolescent girls

- Those who are studying 9th - 12th standard.
- Who is attained menarche?
- Those who are present at the time of data collection.
- Those who are willing to participate in study.

Exclusion criteria:

Adolescent girls

- Who are not present at the time of data collection?
- Who are not willing to participate in study.

Tool and method of data collection:

DEVELOPMENT OF TOOL

The self-structured knowledge questionnaire was prepared on the study to evaluate effectiveness of structure teaching programme on knowledge regarding urinary tract infection and its prevention among adolescent girls. It was based on literature extracted from journals, books, research report, personnel experience, peer group discussion and expert guidance.

DESCRIPTION OF THE TOOL

Data is intended to collect by using structured knowledge questionnaire on urinary tract infection.

Section-1 Socio demographic variable.

Section-2 Knowledge questionnaire on urinary tract infection.

Reliability of tool: The reliability of the tool is computed by using Karl Pearson's formula, where 'r' value obtained was 0.82 which showed that the tool was highly reliable and valid.

Data collection procedure:-

- The data collection was carried out from 10/02/2021 to 25/02/2021
- Permission was obtained from the concerned authorities of the selected Green Valley senior secondary School Jk town Kolar Bhopal.
- The data collection process had done according to groups i.e., 30 subjects divided into three groups in selected Green Valley senior secondary School Jk town Kolar Bhopal. The investigator started the study by introducing himself talking about the research study and purpose. After introducing and explaining the purpose of the study, from the 1st to 11th day, the pre-test knowledge questionnaire was given to the subject regarding the prevention of urinary tract infection.
- Structure teaching programme regarding prevention of urinary tract infection was given after pre-test, used to facilitate easy understanding.
- From the 12th to 23rd days, the investigator administered the post-test and assessed their knowledge on prevention of urinary tract infection.

Ethical consideration:

After approval of the research committee in the R D Memorial College of Nursing Bhopal. A formal permission got from the Green Valley senior secondary School Jk town Kolar Bhopal to conduct the study. Confidentiality was assured and written consent obtained from each sample. The sample was ensuring they have rights to withdraw from the study if they found any difficulties during the intervention.

Plan for data analysis:

The plan for data analysis includes-

- Demographic data was planned to analyze in terms of frequency and percentage.
- Paired 't' test was used to find the significant difference in the pre test and post test knowledge scores.
- Chi – square test was used to find the association between the level of knowledge and socio-demographic characteristics. The level of significant would be set at $p \leq 0.05$ levels to test the significant of difference. This level is often used as a standard for testing the difference.

RESULTS:**Table 1: Distribution of subjects according to their demographic variables****N=30**

Demographic Characteristics	Frequency	Percentage (%)
Age		
14	8	26.67
15	12	40
16	10	33.3
Religion		
Hindu	14	46.67
Christian	7	23.3
Muslim	9	30
If any other please specify	0	0
Occupation of mother		
Home Maker	26	86.67
Daily wage earner\cooli	3	10
Technical\Professional(e.g. Doctor, Teacher etc)	1	3.33
Any other specify	0	0
Mother Education		
Illiterate	9	30
Primary education	8	26.67
High School	8	26.67
Higher Secondary School	5	16.67
Sanitary Facility		
Open field	4	13.33
Inside House	21	70
Public Toilet	5	16.67
Any Other Specify	0	0
Source of Information		
Parents	27	90
Teachers	3	10
Peers/Friends	0	0
Mass Media	0	0
Any other specify	0	0
Area of Living		
Crowded	12	40
Over crowded	2	6.67
Slum	1	3.33
Urban	15	50
Number of Toilet Present in House		
1-2	9	30
2-3	3	10
1	12	40
None	16	20

Table 1 in relation to age group maximum subjects 12 (40%) belong to age group 15 years, (33.3%) in age group of 16 years, (26.67%) in age group of 14 years. In terms of religion, maximum subjects 14 (46.67%) were belonging to Hindu, 9 (30%) were belonging to Muslim, 7 (23.3%) were belonging to Christian. In terms of occupation of mother maximum subjects 26 (86.67%) were belongs to home maker, 3 (10%) were belongs to Daily wage earner\ cooli, 1 (3.33%) were belongs to Technical\Professional. Showing In terms of mother education maximum subjects 9 (30%) were belonging to Illiterate, 8 (26.67%) were belonging to Primary education and High School, 5 (16.67%) were belonging to Higher Secondary School. Showing In terms of Sanitary Facility maximum subjects 21 (70%) were belongs to inside house, 5 (16.67%) were belongs to public toilet, 4 (13.33%) were belongs to Open field. Showing In terms of source of information maximum subjects 27

(90%) were belongs to Parents, 3 (10%) were belongs to Teachers. Showing In terms of area of living maximum subjects 15 (50%) were belongs to urban, 12 (40%) were belongs to crowded, 2 (6.67%) were belongs to overcrowded, 1 (3.33%) were belongs to slum. Showing In terms of number of toilet present in house maximum subjects 12 (40%) were belonging to 1, 9 subjects (30%), were belonging to 1-2, 6 subjects (20%), were belonging to 1, 3 subjects (10%), were belonging to 2-3.

EFFECTIVENESS OF STRUCTURE TEACHING PROGRAMME IN TERMS OF KNOWLEDGE SCORE OF ADOLESCENT GIRLS

Table 2: Pre-test Knowledge scores of subjects regarding prevention of urinary tract infection

N=30

Level of knowledge	Score Range	Frequency	Percentage %	Mean	S.D.
Adequate knowledge	16-20	0	0	8.67	3.68
Moderately knowledge	11-15	6	20		
Inadequate knowledge	0-10	24	80		

Table 2 shows that, in pre-test 24(80%) of subjects were having inadequate knowledge score, 6(20 %) were having average level of moderately knowledge score, 0(0%) were having adequate knowledge regarding prevention of urinary tract infection among adolescent girls.

Table 3: Post-test Knowledge scores of subjects regarding prevention of urinary tract infection N=30

Level of knowledge	Score Range	Frequency	Percentage %	Mean	S.D.
Adequate knowledge	16-20	24	80	16.93	1.3
Moderately knowledge	11-15	6	20		
Inadequate knowledge	0-10	0	0		

Table 3 shows that, in post-test 0(0%) of subjects were having inadequate knowledge score, 6(20 %) were having average level of moderately knowledge score, 24(80%) were having adequate knowledge regarding prevention of urinary tract infection among adolescent girls.

Table 4: Mean, mean difference, standard deviation, and 't' value of pre and post-test knowledge score of adolescent girls. N = 30

Group	Mean knowledge score		Mean difference	Standard deviation		t value
	Pre test	Post test		Pre test	Post test	
Adolescent Girls	8.67	16.93	8.26	3.68	1.3	20.18*

$T_{29} = 2.07$,

* Significant $p < 0.05$

This section deals with effectiveness of structure teaching programme regarding prevention of urinary tract infection among adolescent girls. The level of knowledge during the pre-test and post-test are compared to prove the effectiveness of structure teaching programme. Significance of difference at 0.05% level of significance is tested with paired 't' test and tabulated 't' value is compared with the calculated 't' value and also the calculated 'p' value was compared with acceptable 'p' value i.e., 0.05. H_1 is accepted and it was inferred that the mean difference between pre- and post-test knowledge score was statistically significant.

Table: 5 ASSOCIATION BETWEEN PRE-TEST KNOWLEDGE SCORE WITH SELECTED DEMOGRAPHIC VARIABLE.

Selected demographic variables	Category	Knowledge level mean			Df	P value	χ^2 value	Significance
		0-10	11-15	16-20				
Age in year	a) 14	5	3	0	2	P=5.99	6.911	S
	b) 15	10	2	0				
	c) 16	19	1	0				
Religion	a) Hindu	13	3	0	3	P=7.82	0.479	NS
	b) Christian.	6	1	0				
	c) Muslim	5	2	0				
	d) Any other specific	0	0	0				

Occupation of mother	a) Home maker	21	6	0	3	P=7.82	0.833	NS
	b) Daily wage earner/coolie	2	0	0				
	c) Technical/Professional(e.g. Doctor, Teacher etc)	1	0	0				
	d) Any other specify	0	0	0				
Education of mother	a) Illiterate	6	2	0	3	P=7.82	0.659	NS
	b) Primary education	8	1	0				
	c) High School	7	2	0				
	d) Higher Secondary School	3	1	0				
Sanitation facility	a) Open field	2	1	0	3	P=7.82	1.376	NS
	b) Inside House	18	5	0				
	c) Public Toilet	4	0	0				
	d) Any Other	0	0	0				
Source of information	a) Parents	23	6	0	4	P=9.49	0.258	NS
	b) Teachers	01	0	0				
	c) Peers/Friends	0	0	0				
	d) Mass Media	0	0	0				
Area of living	e) Any other specify	0	0	0	3	P=7.82	4.188	NS
	a) Crowded	11	2	0				
	b) Over crowded	0	0	0				
	c) Slum	0	1	0				
No. of toilet present in house	d) Urban	13	3	0	3	P=7.82	0.496	NS
	a) 1-2	6	2	0				
	b) 2-3	1	0	0				
	c) 1	14	3	0				
	d) None	3	1	0				

The data in table 5 shows that there was significant association between the pre-test knowledge score and age of the adolescent girl at level of 0.05 level of significance the calculated value ($\chi^2=6.91$) and table value is P=5.99. As the calculated value was higher than table value, it was significant

There was no significant association between the pre-test knowledge score and religion, occupation, education, sanitation facility, source of information, area of living, no. of toilet. hence research hypothesis **H₂** is rejected.

DISCUSSION:

Findings related significant deference between pre-test and post-test knowledge score among adolescent girls regarding urinary tract infection.

Effectiveness of structure teaching programmed regarding prevention of urinary tract infection among adolescent girls. The level of knowledge during the pretest and posttest are compared to prove the effectiveness of structure teaching programmed. Significance of difference at 0.05% level of significance is tested with paired 't' test and tabulated 't' value is compared with the calculated 't' value and Also the calculated 'p' value was compared with acceptable 'p' value i.e., 0.05. **H₁** is accepted and it was inferred that the mean difference between pre- and post-test knowledge score was statistically significant. **Association between pre-test knowledge score with selected socio demographic variable.**

Significant association between the pre-test knowledge score and age of the adolescent girl at level

of 0.05 the calculated value ($\chi^2=6.91$) and table value is P=5.99. As the calculated value was higher than table value.

There was no significant association between the pre-test knowledge score and religion, occupation, education, sanitation facility, source of information, area of living, no. of toilet. Hence **H₂** is rejected.

Conclusion:

The aim of this study was to assess the knowledge of adolescent girls regarding prevention of urinary tract infection as well as to provide information to them about regarding prevention of urinary tract infection. The information was given with the aid of structure teaching programme which included various aspects such as introduction, causes, types, complication and management, which will help the adolescent girls to improve their knowledge and to adopt the safe practice.

Recommendations:

1. The study can be replicated on a large sample with a control group.
2. Similar study can be undertaken using other teaching strategies.
3. Similar study can be conducted using larger number of sample.
4. A study can be conducted to find the knowledge and practice of adolescent girls regarding prevention of urinary tract infection

Conflict of interest: No

Financial support: Self

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